

Political Economy

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École Polytechnique - CREST

Master in Economics

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Schedule: Every Wednesday 08:30 to 11:45

Outline of the class

Introduction

Lecture 2-5: Tools of political economics with applications

Lecture 6: Comparative Politics

Part II: Dynamic Political Economy

Lecture 2-5: Tools of political economics

Aim of the first lecture:

- 1 **Background for political economy**
- 2 Introduce alternative work-horse models of policy choice
- 3 Illustrate political forces that influence policy

Preferences and Institutions

First outline some important tenets of

- social choice theory
- spacial voting theory

More in course Social Choice and Voting

A General Policy Problem

- (Economic and Politically) Maximizing agents. Set V agents can be small (e.g. committee) or large (e.g. national election)
- Agents may differ according to an individual characteristic α^i (can be a vector): capture idiosyncratic characteristics, endowments, risks, socioeconomic attributes, etc. Follow a given distribution.
- Economic Agent:
 - ▶ Maximize Utility function w.r.t. economic variable c^i subject to a budget constraint H
 - ▶ Vector $q \in Q$: Economic policies, taken as given
 - ▶ Vector p : data determined by the market

Economic Agent Problem

$$\max_{c^i} U(c^i, q, p; \alpha^i)$$

subject to

$$H(c^i, q, p; \alpha^i) \geq 0.$$

From this problem write indirect utility function:

$$W(q, p; \alpha^i) = \max_{c^i} \{U(c^i, q, p; \alpha^i) | H(c^i, q, p; \alpha^i) \geq 0\}$$

Examples: Savings, Labor Supply, Purchase of Goods, Investments
(given taxes, fiscal incentives and prices)

Policy Maker:

- Set q taking into account p and constraint $G(q, p) \geq 0$
- If the constraint is binding $\rightarrow p = P(q)$: market outcome depends on policy parameters

Political Agent:

- Maximize Indirect Utility function W (by voting, lobbying, ...)
- Individual preferences over the policies $W(q; \alpha^i) \equiv W(q, P(q); \alpha^i)$

Political Agent Problem

So that bliss point (i.e. preferred policy) of voter i

$$q(\alpha^i) = \operatorname{argmax}_q W(q; \alpha^i)$$

\Rightarrow Agents with different preferences α^i have conflicting preferences.

How do we Aggregate Preferences?

- In the general setting, a positive analysis of economic policymaking amounts to specifying an institution (e.g. majority rule) and asking how it aggregates political actions, based on individual policy preferences, into equilibrium policies
- ⇒ No general rule (with desirable properties) that enables a democracy to consistently aggregate individual preferences into policy choices.

Arrow's (1951) Impossibility theorem

There is no democratic mechanism which allows individual preferences to be aggregated in a consistent way:

H1 Rationality (complete and transitive)

H2 Unrestricted domain

H3 Weak Pareto optimality

H4 Independence (from irrelevant alternatives)

⇒ We are going to drop *H2* and restrict individual preferences

Majority rule voting

- A1 **Direct democracy:** The citizens themselves make the policy choices.

- A2 **Sincere voting:** In every vote, each citizen votes for the alternative that gives him the highest utility according to his policy preferences (indirect utility function) $W(q; \alpha^i)$.

- A3 **Open agenda:** Citizens vote over pairs of policy alternatives, such that the winning policy in one round is posed against a new alternative in the next round and the set of alternatives includes all feasible policies.

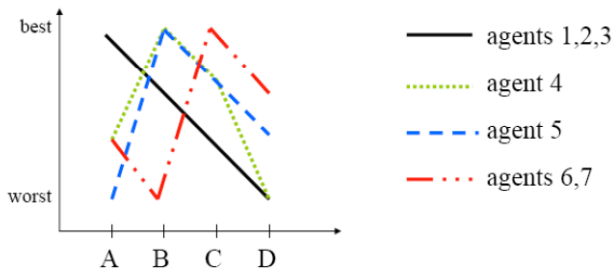
One-Dimensional Policy

Definition: Condorcet winner

A Condorcet winner is a policy q^* that beats any other feasible policy in a pairwise voting.

Definition: Single peaked preferences (Black, 1948)

Policy preferences of voter i are single peaked if the following statement is true: if $q'' \leq q' \leq q(\alpha^i)$ or $q'' \geq q' \geq q(\alpha^i)$ then $W(q''; \alpha^i) \leq W(q'; \alpha^i)$.



Preferences of agents 6 and 7 are not single-peaked.

Median Voter's Theorem

If all voters have single-peaked policy preferences over a given ordering of policy alternatives, a Condorcet winner always exists and coincide with the median-ranked bliss point (q^m).

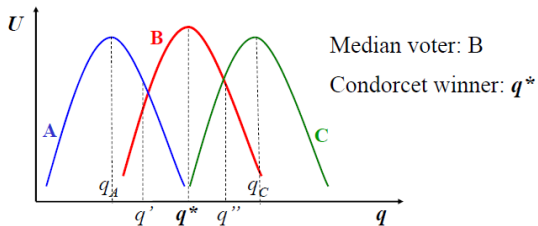
Median Voter's Theorem

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Corollary

q^m is the unique equilibrium policy (stable point) under pure majority rule, that is, under $A1 - A3$.

Sketch of Proof



$$q' < q^* \begin{cases} \text{A prefer } q' \\ \text{B and C prefer } q^* \end{cases} \quad q'' > q^* \begin{cases} \text{A and B prefer } q^* \\ \text{C prefer } q'' \end{cases}$$

$\Rightarrow q^*$ always win in a majority voting election

Example: A Simple Model of Redistribution

- Acemoglu, Robinson (2006)
- A continuum of voters $\mathcal{I} = [0, 1]$
 - ▶ Income $y_i \sim_{iid} F(\cdot)$.
 - ▶ Average Income $\bar{y} = \int y dF(y)$
 - ▶ Median $y^m = F^{-1}(1/2)$.
 - ▶ In a typical income distribution $y^m < \bar{y}$.
 - ▶ Linear utility $u(c_i) = c_i$.

The Government

- There is a uniform tax rate τ .
- There may be inefficiencies due to the use of a tax, either because it is costly to organize or because of distortions created by the tax system (e.g. tax evasion). This is captured by a cost $c(\tau)\bar{y}$, with $c'(\cdot) > 0$, $c''(\cdot) > 0$, $c'(0) = 0$, $c'(1) > 1$ (so that no agent prefers $\tau = 1$).
- The revenue collected is $T = (\tau - c(\tau))\bar{y}$.
- T is then used as a lump sum transfer to the agents to be used for private consumption.

Ideal Policies

- The utility an agent derives from a policy τ is

$$V(\tau, y_i) = (1 - \tau)y_i + (\tau - c(\tau))\bar{y}.$$

- $V(\cdot)$ is strictly concave and hence single-peaked.
- The ideal policy of agent i satisfies

$$\tau^*(y_i) = \begin{cases} [c']^{-1} \left(1 - \frac{y_i}{\bar{y}} \right) & \text{if } y_i < \bar{y} \\ 0 & \text{if } y_i \geq \bar{y} \end{cases}.$$

- Hence richer individuals favor lower tax rates. ($c'(\cdot)$ is increasing hence so is its inverse $[c']^{-1}(\cdot)$)
- In particular every agent with an income higher than the average prefers $\tau = 0$

- The Median voter theorem implies that the Condorcet winner is

$$\hat{\tau} = \tau^*(y^m).$$

- With a typical income distribution such that $y^m < \bar{y}$, we have $\hat{\tau} > 0$.
- As $\frac{y^m}{\bar{y}}$ decreases (more inequality), $\hat{\tau}$ increases.
- Extending the franchise leads to a higher tax rate and bigger government.

- Unidimensionality and single-peakedness strong assumptions.

Unidimensionality: restricts available policy instruments

Single-peakedness: when agents make economic choices

concavity of utility function (sufficient for generating single-peakedness) not guaranteed, e.g. optimal income taxes.

More general sufficient conditions \Rightarrow Single-crossing
(Gans-Smart, 1996)

Definition: Single-crossing property

The preferences of voters in V satisfy the single-crossing property when the following statement is true: if $q > q'$ and $\alpha^{i'} > \alpha^i$ or if $q < q'$ and $\alpha^{i'} < \alpha^i$ then $W(q; \alpha^i) \geq W(q'; \alpha^i) \Rightarrow W(q; \alpha^{i'}) \geq W(q'; \alpha^{i'})$.

Theorem

If the preferences of voters in V satisfy the single-crossing property, a Condorcet winner always exists and coincides with the bliss point of the voter with the median value of α^i .

- Single-peakedness voters allow to rank voters according to their individually preferred policy.
- Single-crossing monotonicity of preferences allow to rank voters according to their individuals types.

Verify single-crossing is easy: Spence-Mirrlees condition on marginal rates of substitution.

Multidimensional Policy - Unidimensional Conflict

Definition: Intermediate preferences (Grandmont, 1978)

Voters in the set V have intermediate preferences if their indirect utility function $W(q, \alpha^i)$ can be written as:

$$W(q; \alpha^i) = J(q) + K(\alpha^i)H(q),$$

where $K(\alpha^i)$ is monotone in α^i , for any $H(q)$ and $J(q)$ common to all voters.

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Intermediate preferences: voter heterogeneity is limited in that voters' preferences for a multidimensional policy can be projected on a unidimensional space in which different voters can be ordered by their type.

Theorem

If voters in V have intermediate preferences, a Condorcet winner exists and is given by $q(\alpha^m)$.

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Intermediate preferences: Poole and Rosenthal (1991) this (almost) holds for U.S. congressmen for the traditional left to right ideology.

Multidimensional Policy

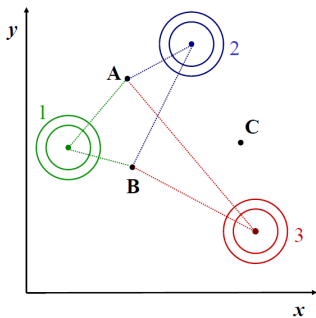
- Spatial voting models: Representation of preferences as some measure of the distance from the bliss point

E.g. $\|q - \alpha^i\|$ or $(q - \alpha^i)^\alpha$

- When does an equilibrium exist?

“Median in all directions”: a composite-policy such that the voters are splitted in two even parts according to any policy dimension.

Spatial Representation of Preferences



Condorcet Cycles:

	1	2	3
A to B	+	-	+
B to C	-	+	+
C to A	+	+	-

Nonexistence of Condorcet winner

- Serious issue in political economy

E.g. nonexistence in redistributive politics game.

Sincere voting ($A2$) is restrictive if open-agenda process ($A3$) does not imply convergence to Condorcet winner.

- End of political economy?

Restricting institutions: E.g.

Delegation of policy choice to elected representatives \Rightarrow relax $A1$.

Restricted agenda \Rightarrow relax $A3$.

Strategic voting not an issue if two policy alternatives: all voters vote sincerely faced with only two policies \Rightarrow relax $A2$.

1. Motivation of politicians: when policy-makers play a role in political process *their* preferences matter

- Opportunistic
- Partisan

2. Timing of Policy Choice

- Pre-election politics (Commitment)
- Post-election politics (No Commitment)

1. Legislative models:

Post Electoral Politics: decision making rules, agenda setting, allocation of policy jurisdiction, etc.

(a) Structure induced equilibrium (Shepsle, 1979)

(b) Agenda setter (Romer-Rosenthal, 1978; Baron-Ferejhon, 1989)

2. Interest group models / lobbying:

Contributions, informational asymmetries, etc.

(a) Becker (1983, 1985)

(b) Grossman-Helpman (1994)

3. Electoral models:

Electoral competition between two candidates, distribution of voters preferences, etc.

- (a) Downsian model (Downs, 1957)
- (b) Probabilistic voting (Coughlin and Nitzan, 1981; Ledyard, 1984; Dixit-Londregan, 1996)
- (c) Citizen candidate (Besley-Coate, 1997; Osborne-Slivinski, 1996)

Take away

- Classical results from social choice and voting theory tell us we cannot hope for a general model of universal applicability.
⇒ Case-by-case approach
- Dimension of policy key
⇒ If all issues can be ranked according to one dimension: existence of equilibria + median voter type results in Downsian electoral competition.
⇒ If multi-dimensional: assumptions about the policy process (preferences of policy-makers matter).

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